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ABSTRACT

Teachers must be at the center of any effort to improve education, but how can teachers be prepared to meet the educational challenges of the future? Unlike traditional inservice training, today's professional development is designed with teacher input and builds teachers' capacities for working in teams to educate children. Three promising professional development approaches are work-based learning, the mini-sabbatical, and the case study method. Teacher roles are changing as they relate to two main areas, integration and school-to-work. Successful integration programs include changes involving cooperative efforts, curriculum strategies, instructional strategies, and administrative practices and procedures. Teacher efforts in school-to-work include serving as ambassadors for school-to-work programs, establishing and maintaining relationships with the workplace, and having first-hand knowledge of the workplace. In order for schools to overcome barriers and resistance to implementing these educational reforms, they must create a vision of the future, the highest levels of authority must subscribe to the vision, and administrator commitment to the vision must be reflected through actual support at the teacher level. (18 references) (KC)

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Using Professional Development to Meet Teachers' Changing Needs: What We Have Learned

CURTIS FINCH

Teachers must be at the center of any effort to improve education and must themselves build the capacity to change and evolve....

Preparing Teachers for Change

The 1990s will probably be remembered as a decade of major educational reform in the United States. During this period, the quality and focus of education has been a topic of frequent public debate. Many government and business leaders asserted that schools were not preparing students adequately for today's workplace. This was why, they claimed, the U.S. was falling behind other nations in its competitive economic position.

Unquestionably, teachers must be at the center of any effort to improve education. But how can teachers be prepared to meet the educational challenges of the future? To do so, teachers themselves must build the capacity to change and evolve as their educational institutions undergo change. Professional development offers teachers the opportunity for lifelong learning in their careers. Ideally it builds upon what new teachers have learned in teacher preparation programs, and upon what other teachers have learned through years of classroom experience.

Unlike the more traditional "inservice training" approach of earlier decades, today's professional development is designed with teacher input and builds teachers' capacities for working in teams to educate children. In the 1990s, professional development has largely meant helping teachers implement educational reforms and strategies such as school-to-work, tech prep, integration of academic and vocational education, career pathways, and smoother connections between secondary and postsecondary education.

All reforms involve change, and those who are willing to take part in educational reforms know they must change as well. But as the following story illustrates, change is not easy (Schmidt, Finch, & Faulkner, 1992):

> Six years ago, Fred Hamilton became the principal of Southport Technical School, a high school located in an urban area of an eastern state. After half a year of careful observation and planning, Fred decided there was a real need to integrate the school's vocational and academic curricula. His goal was to make the total set of course offerings more meaningful for students so they would understand why they were taking particular courses, and how the courses contributed to career choices. He also felt it was important to deliver the best content in the most effective way to all students.
>
> With the help of faculty and other staff, the school developed a plan to create four content clusters at Southport. Vocational teachers served as the cluster nucleus, and academic teachers were to work with vocational teachers to provide academic

All proper nouns are pseudonyms.

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Promising Professional Development Approaches

Although there are many ways to provide teachers with professional development, three approaches show the greatest promise for meeting teachers' needs. They include

1) work-based learning,

2) the mini-sabbatical, and

3) the case study method.

content in vocational settings. The plan was phased in over a three-year period. Year one was devoted to planning and model development. During year two, Southport operated with its four new vocational clusters, but retained separate academic departments.

At the beginning of year three, the academic departments were abolished and academic teachers were assigned to the clusters. One of the project's critical moments occurred that day. About 10% of the academic teachers fully accepted what was happening, 10% objected, and 80% waited to see what was going to happen. Several teachers, including English teacher Jim Hightower, immediately filed grievances and went to the local school board, complaining that the curriculum would be destroyed and Southport graduates would be denied admission into college. However, the board, which had been supportive of the integration plan from its beginning, continued to support Principal Hamilton.

Two years after the plan went into effect, Jim Hightower showed up at a school board meeting and asked to speak. What he said caught a number of board members by surprise. "I just wanted to tell you how wrong I was about Southport's integration plan," he said. "It's the best thing that has ever happened to our school."

Southport High is now one of 12 showcase schools in the nation and has been named a national model by the U.S. Department of Education. It is also one of the featured schools in an integration manual that is distributed nationwide.

Educational reforms demand that teachers assume new roles and work in new ways. According to research from the National Center for Research in Vocational Education (NCRVE), teachers are more likely to change their teaching practices—and thus help to implement school reforms, as well as encourage colleagues to do likewise—when the professional development they receive meets the following criteria:

- Teachers are involved in all stages of school reforms, including planning, implementation, and evaluation.
- Teachers receive extensive assistance and support as they begin the change process.
- Teachers receive additional assistance at regular intervals during implementation of the reform.

Recent NCRVE research offers a number of suggestions for improving teaching and learning in high schools and community colleges where educational reform is being implemented. First, this *CenterPoint* will describe three promising professional development approaches NCRVE has investigated—work-based learning, the mini-sabbatical, and the case study method.

Second, this *CenterPoint* will discuss new teacher roles as they relate to two main areas—integration and school-to-work—and the professional development strategies that have proven successful in preparing teachers for these roles.

Promising Professional Development Approaches

Although there are many ways to provide teachers with professional development, three approaches show the greatest promise for meeting teachers' needs. They include work-based learning, the mini-sabbatical, and the case study method.

Work-Based Learning

For some time, NCRVE researchers have systematically searched for innovative, work-based teacher professional development programs. In *Teacher Learning in the Workplace and Community*, a product of this initiative, they identified five programs where a workplace learning focus seemed most promising (Phelps et al., 1998). What these programs had in common was the major commitment they made to professional development, and the initiatives they used to connect professional development opportunities with work-based learning.

One example of this commitment may be found in the Jackson-Hillsdale (Michigan) School-to-Work (STW) Partnership. Shortly after the School-to-Work Opportunities Act was enacted in 1994, the Intermediate School Districts of Jackson, Hillsdale, and more recently Lenawee, joined together to establish an expansive system that would transform the educational experience of all students. This experience was designed so each student would "graduate from high school globally aware, technologically literate, technically competent, and prepared to succeed in a career path designed to accommodate individual interests and abilities" (p. 45). The system that was created to change students' educational experience focuses on three key components:

- Comprehensive Career Awareness and Planning—including K-12 career awareness and planning, educational development plans for all students, and exposure to career pathways and portfolios.
- High Academic Standards for All Students—facilitated through strategies such as integrated academics, contextual learning, and authentic assessment.
- Structured Work-Based Learning Opportunities—such as job shadowing, unpaid work experiences, cooperative education, mentorships, and senior transition projects.

An effort of this magnitude demanded that educators' roles change from teaching in traditional school settings to linking the school and the workplace in creative and productive ways. To meet this need, the partnership established a variety of professional development opportunities for teachers that ranged from gaining an in-depth understanding of STW transition to hands-on experiences in business and industry.

One such opportunity for professional development is a workplace fellowship program. In collaboration with the Greater Jackson Chamber of Commerce and Spring Arbor College, a Business Fellowship Program was organized to provide educators and corporate employees with collaborative workplace experiences. Corporate sponsors provided a $2000 stipend to each educator who participated in the fellowship program. Since the program was initiated, 53 educators have participated in a full-time six-week summer experience where they observe and work on activities in collaboration with the participating corporate employees. These activities apply concepts learned during the educators' workplace experience to work on actual projects and tasks. Four hours per week are spent on the Spring Arbor College campus discussing implications the experiences have for classroom instruction. Surveys of former participants have indicated that the experience assists educators in understanding the relationships between the school and the world of work.

Another opportunity created through the Partnership and strongly supported by the community is a Teacher Externship Program. Over the past four years more than 55 teachers have participated in a voluntary one-day, work-based experience within business and industry. Even though the externship is quite brief, it has helped teachers to better understand how their subject matter applies to the world of work. Teachers who complete the externship bring back a number of real work-life experiences they can connect with their teaching and share with their students.

Educators and business leaders in the Portland, Oregon area made a similar commitment to provide expanded learning opportunities for all teachers and students (Phelps et al., 1998). The vehicle for making this happen has been the Business-Education Compact (BEC). Established in 1984, the Compact is a non-profit organization that connects educators with the workplace and is supported through membership dues, contracted services, grants, and contributions. The BEC's board of directors includes 30 business leaders and 30 educators who collectively address its mission of promoting excellence, relevancy, and expanded learning opportunities for all educators and all students. Since 1984, over 1,800 teachers have participated in BEC programs, including paid or unpaid worksite internships with employers. Educators' experiences have in turn impacted more than 125,000 students. A parallel program called the School-to-Work Information System (SWIS) that provides students with direct work-based experiences was begun by the BEC in 1995. Examples of work-based and

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work-related learning activities offered to students include paid and unpaid work-based learning experiences with employers and employer/site visitations.

The Mini-Sabbatical

The mini-sabbatical is an innovative approach that can assist experienced teachers in learning how to create meaningful, reform-related curricula and instruction for school-to-career programs. It was developed to help teachers break out of the traditional classroom and its subject-specific instructional approach (Ramsey, Stasz, Ormseth, Eden, & Co, 1997). During the six-week mini-sabbatical, teachers engage in a range of learning experiences, from applying ethnographic techniques in the workplace to designing "authentic" lessons—those that apply classroom learning to real-life situations. Not only do they learn valuable information about the workplace; they also develop skills in translating workplace observations into meaningful learning experiences for their own students.

Usually teachers participate in mini-sabbaticals during the summer months. They spend the first two weeks preparing for observations and then observing work practices at job sites in business and industry. During the second two weeks, teachers apply their observational skills by preparing a curriculum unit that includes lessons based on "Classrooms that Work," a model derived from classroom observation research. The units that participants prepare should require students to apply practice and problem solving to real-life situations. In the final two weeks, teachers actually teach the new unit of instruction they developed and then assess its effectiveness.

The following are examples of two curriculum units teachers developed during mini-sabbaticals:

- Design and build a model jack for underground tunneling that temporarily supports the tunnel during the initial excavation work.
- Develop a plan for NASA on managing the colonization of the moon.

In her 1997 study, Stasz pilot tested the mini-sabbatical with experienced teachers. She found that teachers who took part in a mini-sabbatical increased their knowledge of work practice; created integrated curricula; adopted teaching roles to support applied, real-life learning; and developed alternative assessments.

Unlike many short, "one-shot" inservice education efforts, the mini-sabbatical serves as an excellent example of holistic professional development. Teachers are taught and coached from start to finish: conceptualizing the unit, developing the curriculum, teaching the content, and assessing its success. The mini-sabbatical promises to change teacher practice to models that align more closely with integration, school-to-work, and associated reforms. However, some issues still need to be worked out, including financing and academic credit for mini-sabbaticals.

The Case Study Method

A third promising approach to teacher education is the case study method (Cruickshank et al., 1996). Cases that portray important aspects of real-life situations, using pseudonyms to protect people and locations, are frequently used in areas such as business and law to bridge the gap between basic knowledge and actual practice. However, they can also offer teachers opportunities to apply knowledge in real-life teaching scenarios and allow greater personal reflection than didactic coursework or trial and error methods. Assessments of case study use in education and other fields have shown that participants enjoy them and in the process can improve their problem-solving and decision-making skills.

An abbreviated version of the full case and questions of Wilhollow High School demonstrates the usefulness of this method:

> Teachers Santanya Murphee, an English teacher, and Kevin Bradenberg, a business teacher, were selected to attend a regional conference on the integration of vocational and academic education. They were chosen from among 10 interested teachers because they were well respected by other faculty, and had already jointly developed a project that involved giving students a common assignment across their classes.
>
> Part of the workshop included ways of writing across the curriculum, so it turned

out to be even better than they expected. Their principal, Jack Kilgannon, suggested they provide an inservice session for other teachers at the high school so all could benefit from their attending the conference. Later, when the principal saw how effective the inservice session had been for Wilhollow High School faculty, he suggested that Kevin and Santanya provide a similar session for teachers from the Wilhollow Technical Center, located five miles away.

One of the district's long-range goals was to get members of both faculties to cooperate with one another in integration activities. However, when the workshop began, they immediately sensed a feeling of hostility on the part of a number of the technical center teachers. The teachers pointed out that the examples Kevin and Santanya were using did not relate to the materials their students read. Further, they said that students did very little writing in their classes.

Later, in a conversation with Principal Kilgannon about their experience at the technical center, Kevin and Santanya began exploring why the inservice session had not been successful there, whereas it had been at the high school.

Here are a few of the questions related to this case that participants are asked to consider:

- What are some possible reasons why the inservice session was not favorably received by the technical center faculty?
- What should teachers know about one another and what others teach before they try to help one another?
- How could Mr. Kilgannon have helped Kevin and Santanya avoid the hostility from the technical center faculty in the first place?

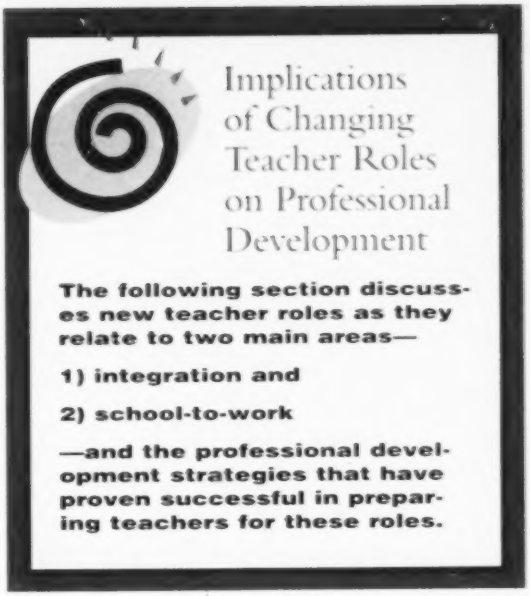
NCRVE staff have prepared cases like the one at Wilhollow High School to aid educators in developing problem-solving, decision-making, and team-building skills as they implement integration in their schools (Schmidt, Finch, Faulkner, & Kandies, 1995). Cases are organized around four functional themes: *(1) cooperative efforts, (2) curriculum strategies, (3) instructional strategies,* and *(4) administrative practices and procedures.* The 46 cases were field tested with more than 400 teachers. Since their release in 1995, they have been used extensively in teacher preparation and professional development programs throughout the U.S.

Implications of Changing Teacher Roles on Professional Development

In reform settings, teachers are no longer simply teaching their assigned subjects in self-contained classrooms. The old form of professional development—where most teachers learned how to teach their classes on their own—no longer works very well. Also gone, at least in districts where reform is a priority, are "inservice days" where typically an outside "expert" lectures on a topic that may hold little relevance for most school faculty.

Instead, out of necessity, teachers are working collaboratively with other teachers in order to prepare students for a workplace that has become much more sophisticated during the past decade. The need to teach academic course material within a real-world context has demanded that academic and vocational teachers work together or "integrate" their content. Programs of reading and writing and mathematics across the curriculum have proliferated. Many math teachers, for instance, now pay attention to their students' writing, and English teachers may address mathematical concepts they encounter in reading material.

Teacher roles have changed in other regards, as well. In order to integrate curricula, academic and vocational teachers must work together during all stages of learning. Other educational reforms such as academies and school-to-work also require a team approach. Thus, one of the teacher's main roles has become that of a collaborator with fellow teachers. Today's teachers are more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The following section discusses new teacher roles as they relate to two main areas—
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likely to function as members of self-directed, interdisciplinary teams, actively collaborating with other teachers to create curricula, design and evaluate instruction, coordinate teaching, and confer about individual students. Therefore, professional development must help teachers acquire the collaborative skills they will need in order to perform these new roles.

The following section discusses new teacher roles as they relate to two main areas—integration and school-to-work—and the professional development strategies that have proven successful in preparing teachers for these roles.

Teacher Roles in the Integration of Academic and Vocational Education

In their 1992 study, Schmidt et al. focused on the different roles teachers take on in order to integrate vocational and academic education. Researchers interviewed educators at school sites in 10 states. It was noted that successful integration programs followed a logical progression through several "stages": (1) cooperative efforts, (2) curriculum strategies, and (3) instructional strategies. Throughout all three stages, administrative practices and procedures play a critical role in ensuring the success of integrated programs.

COOPERATIVE EFFORTS

The integration process typically begins with faculty members' cooperative efforts. Positive relationships among teachers often develop when they learn more about one another, offer to help or ask for help, or provide inservice development activities for one another. A horticulture teacher, for example, might loan a biology teacher equipment and supplies to demonstrate to students how soil samples are tested. Or an English teacher might help a welding teacher determine why some students did not understand how to use indexes found in manufacturing manuals.

CURRICULUM STRATEGIES

Faculty cooperation often evolves into teachers collaborating with each other on various curriculum strategies related to integration. Strategies may range from collaborating on ways to integrate academic and vocational course content to involving workplace and community representatives in the curriculum integration process.

For example, according to school officials in Minot, North Dakota, local businesses believed high school graduates were deficient in the area of written and oral business communication skills. An English teacher and a marketing teacher at a local high school collaborated to create an integrated course to assist students in applying English skills in marketing settings. Through the experience, students learned new skills and each teacher developed greater insight into the other's content field (Walker & Reisenauer, 1996).

INSTRUCTIONAL STRATEGIES

While working together on curriculum integration activities, teachers often see the value of extending their partnerships further through team teaching. One widely used approach links students' school- and work-based learning experiences. The construction of a new conference center at a high school in a depressed area of the Appalachian region provided a mathematics teacher and a carpentry teacher just such an opportunity. Together they helped students learn how to measure the sizes of areas in the conference center that were to be covered with concrete. The students also learned how to compute cubic yards of concrete in lineal feet.

Another approach uses cooperative teaching. This is where teachers of academic and vocational subjects collaboratively integrate instruction through making a joint student assignment. The assignment is typically graded by both teachers and may result in one composite grade or two separate grades, each of which focuses the teacher's particular subject area. For example, a geography teacher and a travel/tourism teacher might make a joint project assignment to students who were enrolled in both of their classes. The students are each tasked to create an itinerary for a customer—a teacher, administrator, or student in the school who requests this type of travel information—to go sightseeing in four different countries in a specific region of the world. Each student is thus faced with the challenge of planning a person's trip and, at the same time, dealing with different coun-

tries' currencies, exchange rates, customs, topographies, time zones, infrastructures, and tourist destinations. Persons who request the travel itineraries may be asked to provide input for determining the project grade by using a form that rates the quality of service they each received.

ADMINISTRATIVE PRACTICES AND PROCEDURES

Administrative processes are able to complement the integration process by fostering a climate of pride and professionalism among school staff. Administrators can support integration efforts through a number of practices that make teacher collaboration more feasible. Some that have proven most successful are:

- building teacher teams;
- scheduling common planning times for teams of academic and vocational teachers;
- facilitating—rather than forcing—the shift toward integration; and
- empowering teacher groups by providing them with opportunities to make significant curriculum- and instruction-related decisions.

Teacher Participation in School-to-Work Transition

More recent professional development reform efforts have focused on teacher involvement and contributions to school-to-work transition programs (Schmidt, Finch, & Moore, 1997). Teachers engaging in these programs face a wide range of new responsibilities. Researchers have determined that certain school-to-work activities and teacher characteristics correlate highly with successful school-to-work programs (Figure 1). As noted in Figure 1, all teachers can help students transition from school to work. Examples include involving students in organized workplace experiences, linking school programs with employers and the community, and involving workplace representatives in school curriculum and instruction activities.

Also identified were the characteristics teachers must have to conduct successful school-to-work programs. These characteristics and their application in school and workplace settings reflect the knowledge, atti-

Figure 1. Teacher Activities that Contribute to School-to-Work Success (from MDS-938)

CONTRIBUTORS TO SUCCESS	EXAMPLES
Involving students in organized workplace experiences	Students shadowing, interning, and being mentored in the workplace
	Students engaged in cooperative work experiences
Helping students to understand the workplace	Students taking field trips in the workplace
Involving workplace representatives in school curriculum and instruction	Advisory committees offering curriculum recommendations
	Guest speakers presenting information about the workplace
Providing students with workplace experiences through school activities	Students doing projects for local industries
	Students catering business luncheons
Including a workplace focus in school instruction	Teachers providing applied academic and lab instruction
	Teachers integrating curriculum and instruction
Learning about the workplace in ways that contribute to better teaching	Teachers completing internships and shadowing experiences in the workplace
Working in the workplace	Teachers gaining workplace experience through summer and part-time jobs
Initiating and maintaining contact with employers and the community	Teachers establishing contacts, linkages, and partnerships with employers
	Teachers providing assistance to employers and the community
Designing classroom experiences around workplace expectations	Teachers planning classroom activities to meet workplace expectations and using "real world" examples in teaching
Following up on current and former students	Teachers conducting placement and evaluation of current students and keeping in touch with program graduates

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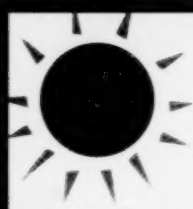


Professional Development Approaches That Work

As with the preceding discussion on changing teacher roles, the ideas presented here focus on ways professional development can support programs that

1) integrate academic and vocational education or that

2) emphasize school-to-work transition.

tudes, and competencies that can help teachers with school-to-work efforts (Schmidt et al., 1997). Several characteristics that are most relevant to teachers of both academic and vocational subjects are described below.

SERVING AS AMBASSADORS FOR SCHOOL-TO-WORK PROGRAMS

Much of the work in selling the concept of school-to-work programs to students, to teaching colleagues, and to people in the workplace falls upon teachers. Teachers must not only understand the philosophy, organization, and content of such programs. They must also have highly developed verbal skills so they can talk about such programs knowledgeably, and they must possess effective interpersonal skills so they can communicate their enthusiasm about the program in a convincing manner.

A vice-principal of a high school that implemented a school-to-work transition program several years ago described a core group of six teachers who spearheaded the project:

> The teachers have been very excited about what they are doing, and they have to communicate that excitement not only to students, but to staff members. They have to be enthusiastic and have high energy. We have that. The teachers have gotten me very excited about tech prep and school-to-work and they have also gotten this school on board in many ways.

BEING ABLE TO ESTABLISH AND MAINTAIN RELATIONSHIPS WITH THE WORKPLACE

This characteristic reflects the teacher's capability to communicate effectively with workplace representatives on a regular basis, involve them in long-term collaboration with the school, and establish a presence in the community-at-large. As a principal of one high school notes:

> Teachers have to keep connections with the workplace. They can't just talk about what the workplace is like; they have to go out there and keep current.

HAVING FIRST-HAND KNOWLEDGE OF THE WORKPLACE

This emerged as a prerequisite to establishing meaningful relationships with workplace representatives. But what sort of first-hand knowledge is needed? According to a human resource director employed at a manufacturing plant, "Teachers need to keep abreast of what the economy is like in their community, what the needs are as far as the community is concerned, and where the students can find jobs." Teachers also need to acquire a general understanding of the business environment, according to a manager of a manufacturing business: "We would like teachers to have a sensitivity, understanding, and appreciation for the free enterprise system, and the importance of total quality in a job well done."

Understanding the important differences between the school world and the business world is critical. In the words of a school board member (and businessperson):

> Teachers have to understand that when they are talking to business people, the framework consists of bottom lines, margins, and dollars. If a teacher knows something about the businessperson's needs and problems, I think that educator could bring a lot of success to partnerships between schools and businesses.

The bottom line in all school-to-work partnerships is accountability. As one high school science teacher pointed out:

> If we don't know what an employer wants, then when students go out and can't give the employer what is wanted, we haven't done our job.

Professional Development Approaches That Work

Outcomes from recent NCRVE research elaborates on a number of the professional development strategies that have proven successful in preparing teachers for these roles. This research offers a number of suggestions for improving teaching and learning in high

schools and community colleges where educational reform is being implemented. As with the preceding discussion on changing teacher roles, the ideas presented here focus on ways professional development can support programs that integrate academic and vocational education or that emphasize school-to-work transition.

Integration

There are a number of ways educators may be assisted in organizing and implementing integration in their schools (Finch, Schmidt, & Faulkner, 1992). Since integration's impact is generally greater when it is implemented across entire schools, these suggestions relate more closely to whole-school integration. The first two sections, "Professional teams" and "Teachers teaching teachers," are particularly applicable to high schools, but also contain some relevance for community colleges. The final section, "Community college strategies," draws directly from reports of practices at community colleges (Grubb, Badway, Bell, & Kraskouskas, 1996; Illinois Task Force on Academic/Occupational Integration, 1997).

PROFESSIONAL TEAMS

Unquestionably, the high school principal as well as other school administrators and counselors can make the difference between integration's success and failure. One way of helping teachers with the integration process is to assist them in forming professional teams. Building teams is important because it enables teachers to collaborate across teaching areas. In doing so, it strengthens both academic and vocational instruction.

There are several ways to build teacher teams. One strategy is to form self-directed integration committees that can evolve into teams. The committees generally include school representatives from both academic and vocational teaching areas who are already motivated to help with these changes. Their job is to determine how to bring more real-world relevance to academic content and how to weave increased academic content into vocational courses. They must also find effective ways to "sell" integration efforts to their colleagues so that other teachers eventually embrace their enthusiasm for reform and become more active participants in the process.

By using creative scheduling so that all teachers on a team have common planning times, administration can make it possible for teams to meet during the week and work on interdisciplinary curricula. Administrators are also critical in arranging for potential teams of educators to attend professional meetings.

For several years, a principal of a suburban high school in the southeastern U.S. has encouraged a team-building approach among her faculty. In recent years the student body had undergone a significant shift in demographics, with a majority of the students now coming from poor families. Teachers found that the traditional teaching methods they had used in the past were no longer working. Therefore, the principal said, they were highly receptive to new ideas. She summarizes the process they followed:

> Our team members attended a conference sponsored by the Southern Regional Education Board [High] Schools That Work Consortium. Following the conference, the team held a two-week work session at the school to write applied curriculum. The charge I gave the team was for them to come up with significant integration activities they could implement. Their work convinced other teachers the integration effort was worth the work. Eventually, almost all the teachers in the high school were working together to implement integrated curriculum and instruction for their students.

In order for team building to work, teachers must be empowered to make decisions about integration. Although it is still not the predominant view, some administrators are recognizing that opportunities must be provided for teachers to help direct the integration process. Reflecting this belief, one school administrator said:

> When we first received the grant for our vocational and English teachers to work together, we tried to stay out of the implementation stage as much as possible and to make the cooperative efforts ones that were owned by the teachers.

Professional development can be considered as the "glue" that both holds the reform together during the building process and keeps the reform together after it has been fully implemented.

TEACHERS TEACHING TEACHERS (TTT)

A powerful way of linking professional development with team building is through teachers teaching other teachers. In this approach, teachers from within or outside the school provide school faculty with applied, integration-related professional development experiences.

Receiving professional development from experienced, knowledgeable teachers who work in the same school or school district contrasts sharply with traditional "inservice days." TTT is most beneficial when joint teams of vocational and academic teachers conduct workshops for other teachers in their own school. In the workshops, the teachers are able to demonstrate their teamwork and collaboration across subject matter areas. In this way they model what others should do in their teaching.

However, TTT can be a very powerful development approach when used more informally on a day-to-day basis. For example, at Salem (Virginia) High School, Helen Hinkle, English, and Richard Broder, science and math, spent one to two classroom periods weekly for the 1997–98 school year working with vocational teachers in auto service, auto body, and industrial mechanics helping develop students' technical writing and applied math skills (Salem High School, 1998). As part of the writing skill development, students developed and practiced descriptive and instructional writing techniques. For an evaluation, Ms. Hinkle followed the directions written by each of the students. They quickly discovered if their applied writing skills were adequate enough for others to understand in applied settings. "What a great way to evaluate!" exclaimed assistant principal Betsy McClearn.

COMMUNITY COLLEGE STRATEGIES

Community colleges serve an adult clientele and to a great degree are organized more like four-year colleges than secondary education institutions. Additionally, the large number of mature adults who attend community colleges after having had full-time employment experience contributes to an atmosphere where students are more motivated to learn. The following professional development strategies were gleaned from research reports on successful practices at community colleges, and so are particularly applicable to these settings (Grubb et al., 1996; Illinois Task Force on Academic/Occupational Integration, 1997). They are intended to help community college officials assist faculty members in establishing integrated curricula, courses, and teaching.

Such efforts often begin with the community college president, who may establish a vision for professional development in consultation with a broad cross-section of people including faculty, support staff, students, former students, and representatives from business and industry. Frequently a committee comprised primarily of faculty members working with one or two administrators then oversees the next stage to determine what strategies and programs are needed to implement this vision.

The following six strategies have been shown to be useful in changing community college teaching and learning practices.

- Access research information about the organization and implementation of integration programs from clearinghouses, web sites, conferences, and other community colleges across the nation.
- Provide academic and vocational faculty with integration workshops that focus on applied experiences which can easily be used in instructional settings.
- Provide faculty with meaningful learning experiences in the workplace that they can apply to their instruction.
- Seek to infuse academic and occupational content into individual courses and to combine academic and occupational perspectives into multidisciplinary courses.
- Establish remedial and English as a second language (ESL) courses that have an occupational emphasis.
- Revise curriculum planning and teaching practices so they align with the integration process and its outcomes.

An application of several of these strategies may be seen at Fayetteville Technical

Community College (FTCC) in Fayetteville, North Carolina (Grubb, et al., 1996, p. 5). At FTCC, four teams of six faculty members were formed, drawing from math, science, English, and social science, as well as two different occupational areas. Team members consisted of faculty who were judged to be most receptive to the notion of interdisciplinary teaching in the community college. The integrated teams designed 50 curriculum integration guides for 16 technical courses. This curriculum planning activity enabled FTCC to move ahead rapidly with innovation by drawing from faculty who were most positive about the value of interdisciplinary teaching.

School-to-Work Settings

The professional development activities described below have been used at high schools and community and technical colleges. Their purpose is:

- to assist teachers of academic and vocational subjects in learning more about school-to-work reform; and
- to draw from the wide range of learning opportunities that exists in the school, workplace, and community (Finch, Schmidt, & Moore, 1997).

GAINING WORK EXPERIENCE AND VISITING THE WORKPLACE

These two activities have long been recognized by vocational teachers as practical ways to learn about and keep abreast of what goes on in work settings. Exposure to the workplace can be gained through job shadowing, summer internships or jobs, and formal visitations. Often these are organized into a "back-to-industry" program that is run collaboratively by the schools, various businesses and industries, and the community. Sometimes the program is spearheaded by a local chamber of commerce or business/industry consortium.

Teachers tend to be very enthusiastic about their experiences with these programs. A high school science teacher who participated in a back-to-industry program internship commented:

> I do a lot more experiments now—hands-on stuff—because the kids can't realize what goes on in the workplace just by getting information out of a book. I also teach them to be more resourceful, to seek out more on their own instead of me being the main giver of information, because that is one thing they are going to have to do [once they enter the workplace].

INTERACTING WITH WORKPLACE REPRESENTATIVES

Teachers can gain greater insight into what goes on in the workplace through their contacts with workplace employees. Interactions can range from formal activities such as partnerships and advisory committee groups to informal activities such as casual conversations between teachers and employers. Traditionally, vocational teachers have been the ones that make and maintain contact with people in the workplace. However, in contemporary school settings all teachers can benefit from interaction with workplace representatives. A case in point is a business representative who has had extensive involvement with teachers in a local high school. He believes that interacting with people in the world of work is valuable for all teachers.

> Teachers can gain a great deal by observing business representatives in a committee meeting, because they think about things in a totally different way than an academic. The teachers sitting in the meeting pick up on that objective-driven thinking process. I know it's a learning experience for us, which means it has to be the other way, too.

Increased contact with business people can prepare teachers for a future time when they will need to ask employees to speak to students in their classes, or will attempt to convince employers to provide internships for their students. When teachers are unable to interact effectively with business people, they are likely to miss out on potential opportunities for collaboration.

Challenges to New Professional Development Approaches

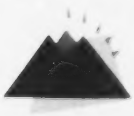
Educational reform and professional development reform must be implemented in concert with one another . . . . A vision of the future must be developed, . . . supported in the long-term at the highest level of the . . . system. Professional development [is] the "glue" that holds the reform together.

Challenges to New Professional Development Approaches

1998 legislation has provided educators with a meaningful starting point from which to reform education. The Carl D. Perkins Vocational and Applied Technology Educati n Amendments of 1998 (Perkins III) became law in October 1998. While it is still too early to assess its effect, Perkins III does emphasize many of the major ideas contained in two other major federal legislative initiatives that have impacted vocational education in the 1990s—The Carl D. Perkins Vocational and Applied Technology Education Act of 1990 (Perkins II) and the School-to-Work Opportunities Act (STWOA). Perkins II and STWOA support a number of educational innovations, including:

- tech prep;
- school-to-work transition;
- integrating academic and vocational education;
- linking school and work-based learning in meaningful ways; and
- building powerful alliances between schools, the workplace, and the community.

Thus, reflecting on Perkins II and STWOA offers insights into the ongoing changes in professional development, including those in store under Perkins III.



Resistance to Reform

How have educators in general, and teachers in particular, responded to these reforms? Results from the most recent National Assessment of Vocational Education reveal that four years after passage of the Perkins II legislation, there was still considerable resistance to implementing both tech prep and integration. Additionally, most secondary vocational education programs remain quite traditional in both focus and operation, and educators still try to fit reforms to their existing curricula.

These results come as no great surprise. Most teachers have received little, if any, preparation to work on educational reform except on an individual teacher basis. Perkins II and the STWOA both call for reform that actively engages teachers in working together and with others—both inside and outside the school. A number of schools and school districts have already begun experimenting with this collaborative approach.

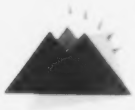
It is evident that teachers must develop new capabilities if they intend to successfully implement educational reforms. Little (1993) noted that the dominant teacher development model, which focuses on broadening the individual teacher's expertise in teaching, is inadequate to meet teachers' needs in the current reform climate. The challenge faced when changing the model of teacher professional development is further confounded by traditional barriers that have separated teachers of academic and vocational subjects.

While, in recent years, the federal government has shifted to a new position that advocates integrating some academic and vocational systems, historically, the federal government has had a strong commitment to support vocational education and maintain it as a system that was largely separate from academic education.

However, this legislative philosophy continues to affect not only how education is provided at the local level, but also teachers' professional development experiences. In many localities, the current school climate is one where "subject remains an important frame of reference and source of professional identity and community for secondary teachers. A status gulf separates vocational and academic studies in most comprehensive high schools" (Little, 1992, pp. 2–3).

Thus, the difficulty faced by those who want to implement educational reform in

their schools is that educational reform and professional development reform must be implemented in concert with one another. Further complicating the reform process are teachers' different backgrounds, education, and subject matter expertise. Reforms are more likely to succeed if consideration is given to individual differences among teachers.



A Vision for Reform

What then can schools do to overcome barriers and resistance to implementing educational reform?

- First, a vision of the future must be developed that describes how implementing the reform will transform the ways teaching and learning take place. It should be emphasized that the result of this transformation will be a meaningful educational improvement (for example, increased student learning, decreased student dropout rate). The vision should convince some teachers, and inform others who may not be convinced right away, that time spent with reform activities will be of practical benefit to both them and their students.
- Second, the vision and thus the reform must be supported in the long-term at the highest level of the school system or community college by administrators and governing bodies (for example, school boards, boards of visitors). This type of commitment communicates to teachers that the reform is a very important, long-term priority for the institution and the community.
- Third, administrator commitment must be reflected through actual support at the teacher level. For example: unwieldy policies and rules are revised, traditionally rigid time schedules are adjusted so all teachers have common planning periods, and fiscal resources are shifted so they support teachers' educational reform activities. This type of grass roots support can facilitate change and development and thus cause teachers to become cheerleaders for, rather than vocal critics of, change.

The Role of Professional Development

And what role does professional development play in this process? Professional development can be considered as the "glue" that both holds the reform together during the building process and keeps the reform together after it has been fully implemented. Many contemporary educational reforms emphasize major change across the entire institution. Such reforms may require that teachers work together, often in self-directed professional teams, to improve what is taught and how it is taught.

Meaningful professional development activities can assist these teachers in learning how to shift from their traditional roles to those that align more closely with the particular reform. For example, a high-school-wide school-to-work careers effort might include reassigning each teacher from a traditional department to one of several clusters in the school. Long-term professional development activities focusing on team building, team member responsibilities, and advanced skills for functioning teams can help the school-to-careers vision become a reality. Without these learning activities, faculty members who have never worked in teams would not have any idea about what they should do. The whole reform process then could end up with teachers being discouraged about their lack of progress and demanding to go back to the traditional organizational structure.

The professional development approaches described in this report can help both academic and vocational teachers to solve problems—especially during periods of major reform—and to work more effectively. In addition, the approaches discussed in this report can prepare teachers to collaborate with people in the workplace and the community so their students will receive more meaningful learning experiences.

And how will educators get ready for future change? A good place to begin is by recognizing that educational change and professional development can be very powerful partners. When planning for educational change includes a strong, ongoing commit-

The difficulty faced by those who want to implement educational reform in their schools is that educational reform and professional development reform must be implemented in concert with one another.

ment to professional development—one that helps teachers change their instructional approaches and work more collaboratively both inside and outside the school—the process of making changes in schools will become easier.

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